

Pursuant to the August 6, 2012 Joint Scheduling Statement (D.I. 27), the Court’s August 13, 2012, September 25, 2012 and November 26, 2012 Orders (D.I. 29, D.I. 35, and D.I. 40, respectively) modifying the Joint Scheduling Statement, and Plaintiff’s July 27, 2015 Sixth Supplemental Disclosure of the Claims Infringed (D.I. 160), Defendants Activision Blizzard, Inc., Blizzard Entertainment, Inc. and Activision Publishing, Inc. (collectively, “Activision”) hereby disclose their Fourth Supplemental Invalidity Disclosure. Activision contends that each of the claims asserted by plaintiff Worlds, Inc. (“Worlds”) is invalid under at least 35 U.S.C. §§ 101, 102, 103, and/or 112, and/or for obviousness-type double patenting.

Worlds has served Activision with *inter alia* its Sixth Supplemental Disclosure of the Claims Infringed, alleging infringement of U.S. Patent Nos. 7,181,690 (“the ‘690 patent”), 7,493,558 (“the ‘558 patent”), 7,945,856 (“the ‘856 patent”), 8,082,501 (“the ‘501 patent”) and

8,145,998 (“the ‘998 patent”) (collectively “the Patents-in-Suit”). Specifically, Worlds has alleged that Activision infringes claims 1–8, 10–17, and 19 of the ‘690 patent, claims 4-9 of the ‘558 patent, claim 1 of the ‘856 patent, claims 1-8, 10, 12 and 14-16 of the ‘501 patent, and claims 1, 18, and 20 of the ‘998 patent (collectively, “Asserted Claims”).<sup>1</sup> Pursuant to the Joint Scheduling Statement ¶ 4.B, Activision does not provide any contentions regarding any claims not asserted in Worlds’ Sixth Supplemental Disclosure of the Claims Infringed. To the extent that Worlds asserts additional claims against Activision in the future, Activision reserves the right to disclose new or supplemental invalidity contentions regarding such claims.

## **II. PRELIMINARY INVALIDITY DISCLOSURE**

### **A. Identification of Prior Art**

Pursuant to the Joint Scheduling Statement ¶ 4.B, and based on Activision’s current understanding of Worlds’ Sixth Supplemental Disclosure of the Claims Infringed, Activision identifies the following references and disclosures set forth in Table 1 as prior art that anticipates or renders obvious one or more Asserted Claims of the Patents-in-Suit. As set forth in the charts in Exhibits A-F<sup>2</sup>, the prior art listed in Table 1 demonstrates that the alleged inventions claimed in the Patents-in-Suit were well known and obvious as of the time of filing of the Patents-in-Suit.

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<sup>1</sup> On April 17, 2013, counsel for Worlds notified counsel for Activision via e-mail that Worlds is no longer asserting infringement of ‘558 patent claims 1-3 and ‘998 patent claim 21 against Activision. On July 27, 2015, Worlds further withdrew assertion of ‘690 patent claims 9, 18, and 20 and ‘998 patent claims 2, 3, 7, 8, 11–17 and 19, all of which were found by the Court to contain an indefinite limitation. (D.I. 160 at 4). Although ‘998 patent claim 21 is still listed in Exhibits I and J provided with Worlds’ Sixth Supplemental Disclosure of the Claims Infringed, this appears to be in error, in view of the April 17, 2013 statement above and the absence of claim 21 from Worlds’ statement of asserted claims. *Id.*

<sup>2</sup> Exhibits A-D were first served and filed on December 3, 2012 with Activision’s Preliminary Invalidity Disclosure relating to the ‘690, ‘558, ‘856 and ‘501 patents (D.I. 41). Exhibit E was first served and filed on December 20, 2012 with Activision’s First Supplemental Preliminary Invalidity Disclosure relating to the ‘690, ‘558, ‘856, ‘501 and ‘998 patents (D.I. 47). Exhibit F was first served and filed on May 24, 2015 with Activision’s Second

**TABLE 1**

<b>Author or Inventor</b>	<b>Title or Patent Number of Prior Art</b>	<b>Date</b>	<b>Relevance</b>
Durward et al.	U.S. Patent No. 5,659,691, titled Virtual Reality Network With Selective Distribution And Updating Of Data To Reduce Bandwidth Requirements, filed September 23, 1993 (“Durward patent”)	August 19, 1997 (issued)	Anticipation and obviousness
Rick Kazman	Making WAVES: On the Design of Architecture for Low-end Distributed Virtual Environments, Proceedings of IEEE Virtual Reality Annual International Symposium, Seattle, WA, September 18-22, 1993, pp. 443-49 (“Kazman Article”)	September 1993	Anticipation and obviousness
Michael Snoswell	Overview of Cyberterm, a Cyberspace Protocol Implementation (“Snoswell Article”)	July 17, 1992	Anticipation and obviousness
Miroslav Stanic	Surf’s Up – Things to see and do on the Internet, Issue #2, pp. 4-6 (“Surf’s Up Article”)	May 1995	Anticipation and obviousness
Michael Snoswell	Cyberterm system, ( <i>See, e.g.</i> , Snoswell Article; Surf’s Up Article)	Publicly known and/or used by 1992	Anticipation and obviousness
Kesmai (Kelton Flinn)	Air Warrior MANUAL.txt, Air Warrior Version 0.8, Preliminary Draft (“First Air Warrior Manual”)	1988	Anticipation and obviousness
Kesmai (Kelton Flinn)	Air Warrior Manual, Version 1.2 (“Second Air Warrior Manual”)	December 1989	Anticipation and obviousness
Kesmai	Super VGA Air Warrior Flight Manual (“SVGA AW Manual”) ( <i>See also</i> SVGA Air Warrior game packaging)	1992	Anticipation and obviousness

Supplemental Preliminary Invalidity Disclosure relating to the ‘690, ‘558, ‘856, ‘501 and ‘998 patents (D.I. 73). Updated versions of Exhibits A–F were provided by Activision on July 27, 2015 with its Third Supplemental Invalidity Disclosure (D.I. 162). Activision provides herewith further updated versions of Exhibits A–F.

<b>Author or Inventor</b>	<b>Title or Patent Number of Prior Art</b>	<b>Date</b>	<b>Relevance</b>
Andrew Reese, Gregg Perlman	Online With Start - Kesmai Air Warrior, Start Magazine, Vol. 3, No. 2, Special Issue #4, p. 73 (“Start Magazine”)	1988	Anticipation and obviousness
Video Games & Computer Entertainment	Worlds of Kesmai Article, Video Games & Computer Entertainment, pp. 75-76 (“Worlds of Kesmai”)	August 1989	Anticipation and obviousness
Jerry Michalski	Multi-User Virtual Environments, Part I, Release 1.0, Esther Dyson’s Monthly Report, (“Michalski Article”)	June 27, 1994	Anticipation and obviousness
Kesmai (Kelton Flinn)	Air Warrior Game (See, e.g., First Air Warrior Manual; Second Air Warrior Manual; SVGA AW Manual; SVGA Air Warrior game packaging; Start Magazine; Worlds of Kesmai; Michalski Article; Air Warrior Source Code and Executables)	Publicly known and/or used by 1986	Anticipation and obviousness
Thomas Funkhouser	RING: A Client-Server System for Multi-User Virtual Environments, 1995 IEEE Symposium on Interactive 3D Graphics, pp. 85-92 (April 9-12, 1995) (“Funkhouser Article”)	April 12, 1995	Anticipation and obviousness
Thomas Funkhouser, AT&T Bell Labs	Network Services for Multi-User Virtual Environments, IEEE Network Realities ‘95, Boston, MA (“Second Funkhouser Article”)	October 1995	Anticipation and obviousness
Thomas Funkhouser	U.S. Patent No. 5,784,570, titled Server for Applying a Recipient Filter and Compressing the Input Data Stream Based Upon a Set of at Least One Characteristics in a Multiuser Interactive Virtual Environment (“Funkhouser Patent”)	July 21, 1998 (issued)	Obviousness

Author or Inventor	Title or Patent Number of Prior Art	Date	Relevance
Thomas Funkhouser, Carlo H. Séquin	Adaptive Display Algorithm for Interactive Frame Rates During Visualization of Complex Virtual Environments, <i>presented at</i> 20 <sup>th</sup> Annual Conference on Computer Graphics and Interactive Techniques, Aug. 1-6, 1993, Anaheim, CA (“1993 Funkhouser Article”)	August 1993	Obviousness
Thomas Funkhouser	RING System ( <i>See, e.g.</i> , Funkhouser Article; Second Funkhouser Article; Funkhouser Patent; 1993 Funkhouser Article; <i>Visualization and Interaction in Large 3D Virtual Environments</i> , Thomas A. Funkhouser (Abstract of Nov. 22, 1994 presentation, <i>available at</i> <a href="http://graphics.stanford.edu/glunches/1994-1995/nov22.html">http://graphics.stanford.edu/glunches/1994-1995/nov22.html</a> ; ACTV00070176 at 1:00:40 – 1:05:53)	Publicly known and/or used by November 1994	Anticipation and obviousness
Rick Kazman	HIDRA: An Architecture for Highly Dynamic Physically Based Multi-Agent Simulations (“HIDRA Article”)	1993	Anticipation and obviousness
Michael Macedonia, Michael Zyda, David Pratt, Paul Barham, Steven Zeswitz	NPSNET: A Network Software Architecture for Large Scale Virtual Environments, Presence, Vol. 3, No. 4 (“NPSNET Article”)	Fall 1994	Anticipation and obviousness
Michael Macedonia	A Network Software Architecture for Large Scale Virtual Environments, Naval Postgraduate School (“Macedonia Dissertation”)	June 1995	Anticipation and obviousness
David Pratt	A Software Architecture for the Construction and Management of Real-Time Virtual Worlds, Naval Postgraduate School (“Pratt Dissertation”)	June 1993	Anticipation and obviousness

Author or Inventor	Title or Patent Number of Prior Art	Date	Relevance
Michael Macedonia, Michael Zyda, David Pratt, Paul Barham, Steven Zeswitz	NPSNET system ( <i>See, e.g.</i> , NPSNET Article; Macedonia Dissertation; Pratt Dissertation; Network Software Architectures for Real-Time Massively-Multiplayer Online Games, R. Delano, P. McFarlane (Feb. 2, 2005), pp. 64-68; NPSNET: A 3D Visual Simulator for Virtual World Exploration and Experience, D. Pratt, M. Zydga, <i>in</i> Tomorrow's Realities (July 1991), p. 30); NPSNET Videos (ACTV00070163– ACTV00070186))	Publicly known and/or used by August 1993	Anticipation and obviousness
Brad Lineberger	Kingdom of Drakkar ( <i>See, e.g.</i> , Kingdom of Drakkar Source Code)	Publicly known and/or used by 1989	Anticipation and obviousness
Chip Morningstar, F. Randall Farmer	The Lessons of Lucasfilm's Habitat, Cyberspace: First Steps (1991) ("Habitat A")	1991	Anticipation and obviousness
Lucasfilm Ltd.	The Official Avatar Handbook: A Comprehensive Guide To Understanding Habitat ("Habitat B")	1987	Anticipation and obviousness
Kathy Yakal	Habitat - A Look At The Future of Online Games, Compute!, Issue 77, p. 32 ("Habitat C")	October 1986	Anticipation and obviousness
Chip Morningstar	The Ghu Guide, Lucasfilm Ltd. Games Division ("Habitat D")	March 9, 1987	Anticipation and obviousness
Margaret Morabito	Enter The On-line World Of Lucasfilm, Margaret Morabito ("Habitat E")	1986	Anticipation and obviousness
Quantum Comp. Tech.	Club Caribe Guidebook ("Habitat F")	1989	Anticipation and obviousness
Kazutomo Fukuda, Tadayuki Tahara, Toru Miyoshi	Hypermedia Personal Computer Communication System: Fujitsu Habitat ("Habitat G")	1990	Anticipation and obviousness

Author or Inventor	Title or Patent Number of Prior Art	Date	Relevance
Lucasfilms, F. Randall Farmer, Chip Morningstar	Habitat ( <i>See, e.g.</i> , Habitat A-G; Habitat Source Code; Habitat Videos)	Publicly known and/or used by 1986	Anticipation and obviousness
Greg Thompson, Mark Horowitz, George Woltman	The MAZE game (“Maze War H”)	1976	Anticipation and obviousness
Callisto	Super Maze Wars Brochure (“Maze War I”)	1992	Anticipation and obviousness
MacroMind	Maze Wars+ Brochure (“Maze War J”)	1987 (upon information and belief)	Anticipation and obviousness
Oracle	Maze at INTEROP Brochure (“Maze War K”)	1992	Anticipation and obviousness
Oracle	Oracle at INTEROP 92 (“Maze War L”)	October 1992	Anticipation and obviousness
Greg Thompson et al.	Maze War ( <i>See, e.g.</i> , Maze War A-O <sup>3</sup> )	Publicly known	Anticipation and obviousness

<sup>3</sup>Maze War A-G and M-O are as follows: Webpage found at <http://www.digibarn.com/collections/games/xerox-maze-war/index.html>, DigiBarn Computer Museum (Printed on 10/15/2009) (“Maze War A”); Webpage found at <http://www.digibarn.com/collections/games/maze-war/other-mazes/MazeWar-for-Alto.html>, DigiBarn Computer Museum (Printed on 10/15/2009) (“Maze War B”); Webpage found at <http://www.digibarn.com/history/04-VCF7-MazeWar/stories/colley.html>, DigiBarn Computer Museum (Printed on 10/15/2009) (“Maze War C”); Webpage found at <http://www.digibarn.com/history/04-VCF7-MazeWar/stories/guyton.html>, DigiBarn Computer Museum (Printed on 10/15/2009) (“Maze War D”); Webpage found at <http://www.digibarn.com/history/04-VCF7-MazeWar/stories/lebling.html>, DigiBarn Computer Museum (Printed on 10/15/2009) (“Maze War E”); Webpage found at <http://www.digibarn.com/history/04-VCF7-MazeWar/panelists.html>, DigiBarn Computer Museum (Printed on 10/15/2009) (“Maze War F”); The aMazing History of Maze, Greg Thompson (2004) (“Maze War G”); Video of Maze War game in play on the Imlac PDS-1D hardware, found at <http://www.digibarn.com/collections/games/maze-war/implac-pds1-maze/movies/tom-uban-mazewar-demo-400.mov>, DigiBarn Computer Museum (Downloaded on 10/16/2009) (“Maze War M”); Video of Maze War game in play on Xerox Alto and 6085 hardware, found at <http://www.digibarn.com/collections/games/xerox-maze-war/movies/don-on-xerox-6085-maze.mov>, DigiBarn Computer Museum (Downloaded on 10/16/2009) (“Maze War N”); Video found at <http://www.digibarn.com/collections/games/xerox-maze-war/movies/maze->

Author or Inventor	Title or Patent Number of Prior Art	Date	Relevance
		and/or used by 1975	
J. Calvin, A. Dickens, B. Gaines, P. Metzger, D. Miller, D. Owen	The SIMNET Virtual World Architecture, Virtual Reality Annual International Symposium, 1993 IEEE (“SIMNET Article”)	1993	Anticipation and obviousness
Kevin Kelly	The First Online Sports Game, Wired (“Kelly Article”)	December 1993	Anticipation and obviousness
Jonathan Shekter	The Netrek Newbie Manual, Rev. 1.3 (“Netrek Manual”)	November 1995	Anticipation and obviousness
Kevin Smith, Scott Silvey	Netrek ( <i>See, e.g.</i> , Declaration of Kevin Smith (Dec. 17, 2007) (“Smith Dec.”); Declaration of Kevin Smith (Oct. 9, 2008) (“Second Smith Dec.”); Declaration of Andrew T. McFadden (Oct. 13, 2008) (“McFadden Dec.”); Declaration of Andrew T. McFadden (Oct. 21, 2008) (“Second McFadden Dec.”); Kelly Article; Netrek Manual; Netrek Source Code)	Publicly known and/or used by 1991	Anticipation and obviousness
Matthew S. Fell	The Unofficial Doom Specs, Release v1.666 (“Doom Specs”)	December 15, 1994	Obviousness
id Software	The Doom v1.2 Manual, readme.exe file (“Doom v1.2 Manual”)	February 16, 1994	Obviousness
id Software	Doom ( <i>See, e.g.</i> , Doom Specs; Doom v1.2 Manual; <a href="http://everything2.com/title/The+Doom+rendering+engine?display+type=printable">http://everything2.com/title/The+Doom+rendering+engine?display+type=printable</a> (“Doom Rendering Engine”); <a href="http://doom.wikia.com/wiki/Doom_networking_component">http://doom.wikia.com/wiki/Doom_networking_component</a> (“Doom Networking Component”); Doom Source Code and Executables)	Publicly known and/or used by February 1993	Obviousness

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*on-alto-fastart.mov*, DigiBarn Computer Museum (Downloaded on 10/16/2009) (“Maze War O”).



<b>Author or Inventor</b>	<b>Title or Patent Number of Prior Art</b>	<b>Date</b>	<b>Relevance</b>
Sierra On-line	Shadow of Yserbius Manual	1993	Anticipation and obviousness
Sierra On-line	Shadow of Yserbius ( <i>See, e.g.</i> , Shadow of Yserbius Manual; Shadow of Yserbius and INN Executables)	Publicly known and/or used by 1992	Anticipation and obviousness
Bralick et al.	Using a Multi-User Dialogue System to Support Software Engineering Distance Education, 7th SEI CSEE Conference, SOFTWARE ENGINEERING EDUCATION, January 5-7, 1994 (“Bralick Article”)	January 1994	Anticipation and obviousness
James Aspnes	TinyMUD ( <i>See, e.g.</i> , TinyMUD Source Code)	Publicly known and/or used by 1989	Anticipation and obviousness
	MUDs ( <i>See, e.g.</i> , Declaration of John K. Bennett and exhibits (Oct. 28, 2008) (“Bennett Decl.”); Bralick Article; TinyMUD Source Code)	Publicly known and/or used by at least 1989	Anticipation and obviousness
MicroProse	CyberStrike: Intense multiplayer action in Cyberspace (Instruction Manual) (“CyberStrike A”)	1994	Anticipation and obviousness
MicroProse	CyberStrike: Technical Supplement (“CyberStrike B”)	1994	Anticipation and obviousness
Simutronics	CyberStrike ( <i>See, e.g.</i> , CyberStrike A; CyberStrike B)	Publicly known and/or used by 1994	Anticipation and obviousness
Honda	U.S. Patent No. 6,020,885, titled Three-Dimensional Virtual Reality Space Sharing Method and System Using Local and Global Object Identification Codes, filed July 9, 1995 (“Honda patent”)	February 1, 2000 (issued)	Anticipation and obviousness

<b>Author or Inventor</b>	<b>Title or Patent Number of Prior Art</b>	<b>Date</b>	<b>Relevance</b>
Worlds, Inc.	Worlds Ware	Publicly known and/or used by October 1994	Anticipation and obviousness
Worlds, Inc.	AlphaWorld	Publicly known and/or used by July 1995	Anticipation and obviousness
Worlds, Inc.	Worlds Chat	Publicly known and/or used by July 1995	Anticipation and obviousness
Suzuki et al.	U.S. Patent No. 5,736,982, titled Virtual Space Apparatus With Avatars And Speech, filed August 1, 1995 (“Suzuki patent”)	April 7, 1998 (issued)	Obviousness
Nitta	U.S. Patent No. 5,347,306, titled Animated Electronic Meeting Place, filed December 17, 1993 (“Nitta patent”)	September 13, 1994 (issued)	Obviousness
Benford and Fahlén	A Spatial Model of Interaction In Large Virtual Environments, Proceedings of the Third European Conference on Computer-Supported Cooperative Work, September 13-17, 1993, Milan, Italy (“Benford Article”)	September 1993	Obviousness
Benford et al.	Managing Mutual Awareness in Collaborative Virtual Environments, Virtual Reality Software & Technology, Proceedings of the VRST ’94 Conference, August 23-26, 1994, Singapore (“Second Benford Article”)	August 1994	Obviousness

<b>Author or Inventor</b>	<b>Title or Patent Number of Prior Art</b>	<b>Date</b>	<b>Relevance</b>
Virtual Universe Corp.	The Parallel Universe From: info@virtual.cuc.ab.ca (Virtual Universe Product Information) Newsgroups: comp.groupware Subject: Multi-user, Real-time environments - New Product Date: Tue, 23 Aug 1994 18:58:49 GMT ("Virtual Univ. Newsgroup")	August 23, 1994	Obviousness
Foley, Van Dam, Feiner & Hughes	Computer Graphics: Principles and Practice, 2d ed. ("Foley & Van Dam")	1990	Obviousness
Shaun Bangay	Parallel Implementation Of A Virtual Reality System On A Transputer Architecture ("Bangay Dissertation")	November 1993	Obviousness
Myers	U.S. Patent No. 5,490,239, titled Virtual Reality Imaging System, filed September 8, 1994 ("Myers patent")	February 6, 1996 (issued)	Obviousness
Bolas et al.	U.S. Patent No. 5,513,129, titled Method and System for Controlling Computer-Generated Virtual Environment in Response to Audio Signals, filed July 14, 1993 ("Bolas patent")	April 30, 1996 (issued)	Obviousness
Maes et al.	U.S. Patent No. 5,563,988, titled Method and System for Facilitating Wireless, Full-Body, Real-Time User Interaction with a Digitally Represented Visual Environment, filed August 1, 1994 ("Maes patent")	October 8, 1996 (issued)	Obviousness
Shiio et al.	U.S. Patent No. 5,491,743, titled Virtual Conference System and Terminal Apparatus Therefor, filed May 24, 1994 ("Shiio patent")	February 13, 1996 (issued)	Obviousness
Itai et al.	U.S. Patent No. 5,880,709, titled Image Processing Devices and Methods, filed August 29, 1995 ("Itai patent")	March 9, 1999 (issued)	Obviousness

<b>Author or Inventor</b>	<b>Title or Patent Number of Prior Art</b>	<b>Date</b>	<b>Relevance</b>
Schneider et al.	U.S. Patent No. 5,777,621, titled Quality Control Mechanism for Three-Dimensional Graphics Rendering (“Schneider patent”)	July 7, 1998 (issued)	Obviousness
Sitrick	U.S. Patent No. 4,521,014, titled Video Game Including User Visual Image (“Sitrick patent”)	June 4, 1985 (issued)	Obviousness
Michael Benedikt	Cyberspace: Some Proposals, Cyberspace: First Steps (1991) (“Benedikt Chapter”)	1991	Obviousness
Meredith Bricken	Virtual Worlds: No Interface to Design, Cyberspace: First Steps (1991) (“Bricken Chapter”)	1991	Obviousness
Calvin et al.	STOW Realtime Information Transfer and Networking System Architecture (“STOW Paper”)	March, 1995	Obviousness
Van Jacobson, Michael J. Karels	Congestion Avoidance and Control (“Jacobson Article”)	November 1988	Obviousness
Brent et al.	U.S. Patent No. 5,315,591, titled Method and Apparatus for Controlling Congestion in Packet Switching Networks (“Brent patent”)	May 24, 1994 (issued)	Obviousness
Lakshman et al.	U.S. Patent No. 5,650,993, titled Drop from Front of Buffer Policy in Feedback Networks (“Lakshman patent”)	July 22, 1997 (issued)	Obviousness
Newman	U.S. Patent No. 5,457,687, titled Method and Apparatus for Backward Explicit Congestion Notification (BECN) in an ATM Network (“Newman patent”)	October 10, 1995 (issued)	Obviousness
Bustini et al.	U.S. Patent No. 5,313,454, titled Congestion Control for Cell Networks (“Bustini patent”)	May 17, 1994 (issued)	Obviousness

## **1. Worlds Chat and AlphaWorld**

Worlds asserts that the Worlds Chat and AlphaWorld systems embody one or more of the Asserted Claims. Activision's investigation into the features and functionality of Worlds Chat and AlphaWorld is ongoing. To the extent that Worlds Chat and/or AlphaWorld (including any of its predecessor systems, including, *e.g.* Worlds Ware and related prototype systems) was publicly known or used more than one year prior to the effective filing date of the Patents-in-Suit, one or more of the Asserted Claims are anticipated and/or obvious in view of Worlds Chat and/or AlphaWorld.

## **2. The Asserted Claims of the Patents-in-Suit Are Obvious In View Of The Prior Art**

The U.S. Supreme Court decision in *KSR Int'l Co. v. Teleflex Inc., et al.*, 127 S. Ct. 1727, 1739 (2007) held that a claimed invention can be obvious even if there is no explicit, written teaching, suggestion, or motivation for combining the prior art to produce that invention. In summary, *KSR* holds that patents that are based on new combinations of elements or components already known in a technical field may be found to be obvious. *See generally KSR*, 127 S. Ct. 1727. Specifically, the Court in *KSR* rejected a rigid application of the "teaching, suggestion, or motivation [to combine]" test. *Id.* at 1741. "In determining whether the subject matter of a patent claim is obvious, neither the particular motivation nor the avowed purpose of the patentee controls. What matters is the objective reach of the claim." *Id.* at 1741-1742. "Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed." *Id.* at 1742. In particular, in *KSR*, the Supreme Court emphasized the principle that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *Id.* at 1739. A key inquiry is whether the

“improvement is more than the predictable use of prior art elements according to their established functions.” *Id.* at 1740.

In view of the Supreme Court’s *KSR* decision, the PTO issued a set of new Examination Guidelines. *See* Examination Guidelines for Determining Obviousness Under 35 U.S.C. § 103 in view of the Supreme Court Decision in *KSR International Co. v. Teleflex, Inc.*, 72 Fed. Reg. 57526 (October 10, 2007). Those Guidelines summarized the *KSR* decision, and identified various rationales for finding a claim obvious, including those based on other precedents. Those rationales include:

(A) Combining prior art elements according to known methods to yield predictable results;

(B) Simple substitution of one known element for another to obtain predictable results;

(C) Use of known technique to improve similar devices (methods, or products) in the same way;

(D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;

(E) “Obvious to try” – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;

(F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art;

(G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

*Id.* at 57529.

Activision contends that one or more of these rationales apply in considering the obviousness of the Asserted Claims of the Patents-in-Suit. The claim charts in Exhibits A-E provide example sections within the prior art references that teach or suggest each and every element of the Asserted Claims of the Patents-in-Suit. To the extent that any elements of the Asserted Claims are not found in a particular reference, or to the extent that Worlds argues that any of the charted references does not disclose every element of an Asserted Claim, it would have been obvious to combine such reference with other references listed in Table 1 or with the knowledge of a person of ordinary skill in the art. Exemplary combinations and motivations to combine references for specific elements of the Asserted Claims of the Patents-in-Suit are set forth in Exhibit F.

A person of ordinary skill at the time of the alleged inventions of the Patents-in-Suit had reason to combine or modify the references listed in Table 1 in light of the knowledge of a person of ordinary skill in the art at the time of the alleged inventions and information in the prior art cited herein. As a general matter, all of the references charted in Exhibits A-E relate to systems and methods that provide for the interaction of multiple users in a networked virtual environment. As such, they are all within the same field of art and would have been within the knowledge of a person of ordinary skill in the art. The motivation to combine these references is evident from the fact that they are each directed to the same field of technology and each address similar problems and propose similar solutions. Thus, a person of ordinary skill in the art at the

time of filing of the Patents-in-Suit would be motivated to combine elements of any of these and similar references and recognize that the combination of any of these systems and methods is a predictable use of elements known in the art to solve a known problem and a use of known techniques to solve a known problem in the same way.

## **B. Claim Charts**

Activision provides in Exhibits A-F claim charts comparing the references listed in Table 1 with the Asserted Claims of the Patents-in-Suit, setting forth example sections within the prior art that teach or suggest each and every element of the Asserted Claims of the Patents-in-Suit and explaining why, for each contention of obviousness, the prior art renders the Asserted Claim obvious. Activision's identification of specific portions of prior art references that disclose the elements of the Asserted Claims of the Patents-in-Suit is based, at least in part, on its present understanding of the Asserted Claims, its present understanding of Worlds' Sixth Supplemental Disclosure of the Claims Infringed, its present understanding of the prior art, and/or its present understanding of the qualifications and skill level of one of ordinary skill in the art.

The claim charts of Exhibits A-F provide Activision's contentions about which claim elements are taught by or obvious in view of the prior art references. In this regard, they identify representative portions within the prior art references that disclose the elements of the Asserted Claims of the Patents-in-Suit. The cited portions are merely exemplary and do not necessarily reflect or include every portion of the prior art references that discloses or teaches particular claim terms or claim limitations. It should be recognized that a person of ordinary skill in the art would generally read a prior art reference as a whole and in the context of other publications, literature, and general knowledge in the field. To understand and interpret any specific statement



or disclosure in a prior art reference, a person of ordinary skill in the art would rely upon other information including other publications and general scientific or engineering knowledge. In the future, if necessary, Activision might cite additional portions of the cited references to demonstrate and/or evidence the invalidity of the Asserted Claims of the Patents-in-Suit.

Where Activision identifies a particular figure in a prior art reference, the identification should be understood to encompass the caption and description of the figure as well as any text relating to the figure in addition to the figure itself. Similarly, where an identified portion of text refers to a figure or other material, the identification should be understood to include the referenced figure or other material as well.

### **C. Claim Construction**

The Court issued its Claim Construction ruling on June 26, 2015. Activision's Fourth Supplemental Invalidity Disclosure is based on the Court's claim constructions. Activision expressly reserves the right to argue that certain claim terms, phrases, and elements, even as construed, are indefinite, lack written description, are not enabled, are not patentable or are otherwise invalid under 35 U.S.C. § 101 or § 112.

### **D. Inter Partes Review**

On May 26, 2015, Bungie, Inc., petitioned the Patent Trial and Appeal Board of the U.S. Patent and Trademark Office ("PTAB") for *inter partes* review ("IPR") of various claims of the '690, '558, and '856 patents, including all claims presently asserted by Worlds in this action. On June 1, 2015, Bungie, Inc., further petitioned the PTAB for IPR of various claims of the '501 and '998 patents, again including all claims presently asserted by Worlds in this action. Six PTAB IPR proceedings are presently pending against the patents-in-suit, to which Worlds is a party. Activision incorporates by reference, as if expressly set forth in these contentions, all present and

future filings in Bungie's six IPR petitions. Activision does not adopt as its own the positions and arguments of Bungie, Worlds, or their experts, but expressly reserves the right to rely in the future on any argument, references, or testimony presented in these IPRs.

#### **E. Doctrine of Equivalents**

Worlds' Sixth Supplemental Disclosure of the Claims Infringed does not allege infringement under the doctrine of equivalents, and states that "each element of each asserted claim is present literally in the Accused Products."

Activision contests Worlds' statement that it further "reserves the right to contend that the Accused Products still infringe under the doctrine of equivalents." Worlds' First through Fifth Disclosures provided insufficient contentions regarding infringement under the doctrine of equivalents. Worlds has never provided detailed contentions that identify each specific claim limitation allegedly infringed under the doctrine of equivalents and its alleged equivalent element in the accused products, or the basis for Worlds' position regarding each such limitation and its alleged equivalent. Accordingly, Activision contends that Worlds should be precluded from asserting infringement under the doctrine of equivalents. If, however, Worlds provides additional information and is permitted to rely on the doctrine of equivalents, Activision reserves the right to amend and supplement these invalidity contentions as appropriate.

#### **F. Other Grounds For Invalidity**

Pursuant to the Joint Scheduling Statement ¶ 4.B, Activision contends that certain claims of the Patents-in-Suit are invalid under 35 U.S.C. §§ 101, 112, or the doctrine of obviousness-type double patenting ("ODP") because: (1) the claims are not directed to patentable subject matter; (2) the claims lack adequate written description; (3) the claims are not enabled; (4) the claims are indefinite; and/or (5) the claims are not patentably distinct from claims in other

patents obtained by Worlds for the same invention. Activision's contentions that the following claims are invalid under 35 U.S.C. §§ 101, 112, or for ODP are made in the alternative and do not constitute, and should not be interpreted as, admissions regarding the construction or scope of the claims of the Patents-in-Suit, or that any of the claims of the Patents-in-Suit are not anticipated or rendered obvious by prior art.

**1. Invalidity Under 35 U.S.C. § 101**

Activision contends that the Asserted Claims are invalid under 35 U.S.C. § 101 because the claims are not directed to patentable subject matter. In particular, none of these claims is patentable because the claims are directed to abstract ideas and well-understood, routine, conventional activity already engaged in by those in the field.

**2. Invalidity Under 35 U.S.C. § 112, ¶ 1**

The following claims are invalid under § 112, first paragraph, because the specification does not contain a written description of the invention claimed, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same:

(a) '690 patent claims 1, 6, 10, 11 and 15, '558 patent claims 4 and 6, '856 patent claim 1, and the claims that depend from these independent claims, include the phrases "determining, from the received positions, a set of the other users' avatars that are to be displayed to the first user," "determining from the positions transmitted in step (c), by each client process, a set of the avatars that are to be displayed," "determine from the received positions a set of the other users' avatars that are to be displayed," "determining from the positions received in step (c), by said each client process, avatars that are to be displayed to the user associated with

said each client process,” and “determining, from the received positions, a set of the second avatars that are to be displayed to the first user.” These limitations are not disclosed expressly or inherently in the specification as viewed by one of ordinary skill in the art. Therefore, these claims fail to comply with the written description requirement of 35 U.S.C. § 112, first paragraph.

Moreover, nowhere in the specification do applicants disclose the details that would be needed to enable one of ordinary skill in the art to implement the following limitations absent undue experimentation: “determining, from the received positions, a set of the other users’ avatars that are to be displayed to the first user,” “determining from the positions transmitted in step (c), by each client process, a set of the avatars that are to be displayed,” “determine from the received positions a set of the other users’ avatars that are to be displayed,” “determining from the positions received in step (c), by said each client process, avatars that are to be displayed to the user associated with said each client process,” or “determining, from the received positions, a set of the second avatars that are to be displayed to the first user.” Accordingly, ‘690 patent claims 1, 6, 10, 11, and 15, ‘558 patent claims 4 and 6, ‘856 patent claim 1, and the claims that depend from these independent claims, are also invalid under 35 U.S.C. § 112, first paragraph, because the specification fails to provide an enabling disclosure for the above claim elements.

(b) ‘501 patent claims 1, 12 and 14, and the claims that depend from these independent claims, include the phrases “determining, by the client device, a displayable set of the other user avatars associated with the client device display” and “determine a set of the other users’ avatars displayable on a screen associated with the client device.” These limitations are not disclosed expressly or inherently in the specification as viewed by one of ordinary skill in the

art. Therefore, these claims fail to comply with the written description requirement of 35 U.S.C. § 112, first paragraph.

Moreover, nowhere in the specification do applicants disclose the details that would be needed to enable one of ordinary skill in the art to implement the following limitations absent undue experimentation: “determining, by the client device, a displayable set of the other user avatars associated with the client device display” or “determine a set of the other users’ avatars displayable on a screen associated with the client device.” Accordingly, ‘501 patent claims 1, 12 and 14, and the claims that depend from these independent claims, are also invalid under 35 U.S.C. § 112, first paragraph, because the specification fails to provide an enabling disclosure for the above claim elements.

(c) ‘690 patent claims 4, 8, 13 and 16 and ‘558 patent claims 5 and 7 include the phrase “comparing the actual number to the maximum number to determine which of the . . . avatars are to be displayed.” This limitation is not disclosed expressly or inherently in the specification as viewed by one of ordinary skill in the art. Therefore, these claims fail to comply with the written description requirement of 35 U.S.C. § 112, first paragraph.

Moreover, nowhere in the specification do applicants disclose the details that would be needed to enable one of ordinary skill in the art to implement the following limitation absent undue experimentation: “comparing the actual number to the maximum number to determine which of the . . . avatars are to be displayed.” Accordingly, ‘690 patent claims 4, 8, 13 and 16 and ‘558 patent claims 5 and 7 are also invalid under 35 U.S.C. § 112, first paragraph, because the specification fails to provide an enabling disclosure for the above claim element.

(d) ‘501 patent claims 1, 12 and 14, and the claims that depend from these independent claims, include the phrase “fail to satisfy a participant condition imposed on avatars

displayable on a . . . display of the client device.” This limitation is not disclosed expressly or inherently in the specification as viewed by one of ordinary skill in the art. Therefore, these claims fail to comply with the written description requirement of 35 U.S.C. § 112, first paragraph.

Moreover, nowhere in the specification do applicants disclose the details that would be needed to enable one of ordinary skill in the art to implement the following limitation absent undue experimentation: “fail to satisfy a participant condition imposed on avatars displayable on a . . . display of the client device.” Accordingly, ‘501 patent claims 1, 12 and 14, and the claims that depend from these independent claims, are also invalid under 35 U.S.C. § 112, first paragraph, because the specification fails to provide an enabling disclosure for the above claim element.

(e) ‘998 patent claims 1 and 20 include the phrase “failing to satisfy a condition imposed on displaying remote avatars to the local user.” This limitation is not disclosed expressly or inherently in the specification as viewed by one of ordinary skill in the art. Therefore, these claims fail to comply with the written description requirement of 35 U.S.C. § 112, first paragraph.

Moreover, nowhere in the specification do applicants disclose the details that would be needed to enable one of ordinary skill in the art to implement the following limitation absent undue experimentation: “failing to satisfy a condition imposed on displaying remote avatars to the local user.” Accordingly, ‘998 patent claims 1 and 20 are also invalid under 35 U.S.C. § 112, first paragraph, because the specification fails to provide an enabling disclosure for the above claim element.

(f) ‘998 patent claim 18 includes the phrase “failing to satisfy a condition.” This limitation is not disclosed expressly or inherently in the specification as viewed by one of ordinary skill in the art. Therefore, this claim fails to comply with the written description requirement of 35 U.S.C. § 112, first paragraph.

Moreover, nowhere in the specification do applicants disclose the details that would be needed to enable one of ordinary skill in the art to implement the following limitation absent undue experimentation: “failing to satisfy a condition.” Accordingly, ‘998 patent claim 18 is also invalid under 35 U.S.C. § 112, first paragraph, because the specification fails to provide an enabling disclosure for the above claim element.

(g) ‘501 patent claims 1, 12 and 14, the claims that depend from these independent claims, and ‘998 patent claim 3 include the phrases “customizing, using a processor of a client device, an avatar in response to input by the first user,” “create a custom avatar in response to input by the first user” and “a custom avatar created based on input from the local user.” These limitations are not disclosed expressly or inherently in the specification as viewed by one of ordinary skill in the art. Therefore, these claims fail to comply with the written description requirement of 35 U.S.C. § 112, first paragraph.

Moreover, nowhere in the specification do applicants disclose the details that would be needed to enable one of ordinary skill in the art to implement the following limitations absent undue experimentation: “customizing, using a processor of a client device, an avatar in response to input by the first user,” “create a custom avatar in response to input by the first user” or “a custom avatar created based on input from the local user.” Accordingly, ‘501 patent claims 1, 12 and 14, the claims that depend from these independent claims, and ‘998 patent claim 3 are also

invalid under 35 U.S.C. § 112, first paragraph, because the specification fails to provide an enabling disclosure for the above claim elements.

(h) ‘501 patent claims 1, 12 and 14, ‘998 patent claim 18, and the claims that depend from these independent claims, include the phrases “a three dimensional avatar” and “three dimensional renderings of the less than all of the remote user avatars.” These limitations are not disclosed expressly or inherently in the specification as viewed by one of ordinary skill in the art. Therefore, these claims fail to comply with the written description requirement of 35 U.S.C. § 112, first paragraph.

Moreover, nowhere in the specification do applicants disclose the details that would be needed to enable one of ordinary skill in the art to implement the following limitations absent undue experimentation: “a three dimensional avatar” or “three dimensional renderings of the less than all of the remote user avatars.” Accordingly, ‘501 patent claims 1, 12 and 14, ‘998 patent claim 18, and the claims that depend from these independent claims, are also invalid under 35 U.S.C. § 112, first paragraph, because the specification fails to provide an enabling disclosure for the above claim elements.

(i) ‘998 patent claim 1, and the claim that depends from this independent claim, include the phrase “switching between a rendering on the graphic display that shows at least a portion of the virtual environment to the local user from a perspective of one of the remote user avatars and a rendering that allows the local user to view the local user avatar in the virtual environment.” This limitation is not disclosed expressly or inherently in the specification as viewed by one of ordinary skill in the art. Therefore, these claims fail to comply with the written description requirement of 35 U.S.C. § 112, first paragraph.



Moreover, nowhere in the specification do applicants disclose the details that would be needed to enable one of ordinary skill in the art to implement the following limitation absent undue experimentation: “switching between a rendering on the graphic display that shows at least a portion of the virtual environment to the local user from a perspective of one of the remote user avatars and a rendering that allows the local user to view the local user avatar in the virtual environment.” Accordingly, ‘998 patent claim 1, and the claim that depends from this independent claim, are also invalid under 35 U.S.C. § 112, first paragraph, because the specification fails to provide an enabling disclosure for the above claim elements.

### **3. Invalidity Under 35 U.S.C. § 112, ¶ 2**

The following claims are invalid under § 112, second paragraph, for failure to particularly point out and distinctly claim the subject matter which the applicants regarded as their alleged inventions:

(a) All Asserted Claims include a limitation that refers to filtering of avatar position information by the server – for example, “receiving a position of less than all of the other users’ avatars from the server process” (‘690 patent, claim 1), “transmitting, by the server process to each client process, the positions of less than all of the avatars that are not associated with the client process” (‘558 patent, claim 6), “the first client process receives positions of fewer than all of the second avatars” (‘856 patent, claim 1), “receiving, by the client device, position information associated with fewer than all of the other user avatars” (‘501 patent, claim 1), “receiving, at a client processor associated with the local user, positions associated with less than all of the remote user avatars” (‘998 patent, claim 1). In view of the manner in which these claim terms have been applied in Worlds’ infringement disclosures of August 27, 2015, the Asserted Claims, read in light of the specification and the prosecution history, fail to inform,

with reasonable certainty, those skilled in the art about the scope of the invention, and are thus in violation of 35 U.S.C. § 112 ¶ 2.

(b) ‘690 patent claims 1, 6, 10, 11 and 15, ‘558 patent claims 4 and 6, ‘856 patent claim 1, and the claims that depend from these independent claims, include the phrases “determining, from the received positions, a set of the other users’ avatars that are to be displayed to the first user,” “determining from the positions transmitted in step (c), by each client process, a set of the avatars that are to be displayed,” “determine from the received positions a set of the other users’ avatars that are to be displayed,” “determining from the positions received in step (c), by said each client process, avatars that are to be displayed to the user associated with said each client process,” and “determining, from the received positions, a set of the second avatars that are to be displayed to the first user.” These phrases do not particularly and distinctly claim subject matter that the patent applicants regard as their invention, and do not apprise a person of ordinary skill in the art of its scope. Thus, all claims which include these phrases are in violation of 35 U.S.C. § 112 ¶ 2.

(c) ‘501 patent claims 1, 12 and 14, and the claims that depend from these independent claims, include the phrases “determining, by the client device, a displayable set of the other user avatars associated with the client device display” and “determine a set of the other users’ avatars displayable on a screen associated with the client device.” These phrases do not particularly and distinctly claim subject matter that the patent applicants regard as their invention, and do not apprise a person of ordinary skill in the art of its scope. Thus, all claims which include these phrases are in violation of 35 U.S.C. § 112 ¶ 2.

(d) ‘690 patent claims 4, 8, 13 and 16 and ‘558 patent claims 5 and 7 include the phrase “comparing the actual number to the maximum number to determine which of the . . .

avatars are to be displayed.” This phrase does not particularly and distinctly claim subject matter that the patent applicants regard as their invention, and does not apprise a person of ordinary skill in the art of its scope. Thus, all claims which include this phrase are in violation of 35 U.S.C. § 112 ¶ 2.

(e) ‘690 patent claims 2 and 12 include the phrase “displaying the set of the other users’ avatars from based on the orientation of the first user’s avatar.” This phrase does not particularly and distinctly claim subject matter that the patent applicants regard as their invention, and does not apprise a person of ordinary skill in the art of its scope. Thus, all claims which include this phrase are in violation of 35 U.S.C. § 112 ¶ 2.

(f) ‘501 patent claims 1, 12 and 14, and the claims that depend from these independent claims, include the phrase “fail to satisfy a participant condition imposed on avatars displayable on a . . . display of the client device.” This phrase does not particularly and distinctly claim subject matter that the patent applicants regard as their invention, and does not apprise a person of ordinary skill in the art of its scope. Thus, all claims which include this phrase are in violation of 35 U.S.C. § 112 ¶ 2.

(g) ‘998 patent claims 1 and 20 include the phrase “failing to satisfy a condition imposed on displaying remote avatars to the local user.” This phrase does not particularly and distinctly claim subject matter that the patent applicants regard as their invention, and does not apprise a person of ordinary skill in the art of its scope. Thus, all claims which include this phrase are in violation of 35 U.S.C. § 112 ¶ 2.

(h) ‘998 patent claim 18 includes the phrase “failing to satisfy a condition.” This phrase does not particularly and distinctly claim subject matter that the patent applicants regard

as their invention, and does not apprise a person of ordinary skill in the art of its scope. Thus, all claims which include this phrase are in violation of 35 U.S.C. § 112 ¶ 2.

(i) ‘501 patent claims 1, 12 and 14, the claims that depend from these independent claims, and ‘998 patent claim 3 include the phrases “customizing, using a processor of a client device, an avatar in response to input by the first user,” “create a custom avatar in response to input by the first user” and “a custom avatar created based on input from the local user.” These phrases do not particularly and distinctly claim subject matter that the patent applicants regard as their invention, and do not apprise a person of ordinary skill in the art of its scope. Thus, all claims which include these phrases are in violation of 35 U.S.C. § 112 ¶ 2.

(j) ‘501 patent claims 1, 12 and 14, ‘998 patent claim 18, and the claims that depend from these independent claims, include the phrases “a three dimensional avatar” and “three dimensional renderings of the less than all of the remote user avatars.” These phrases do not particularly and distinctly claim subject matter that the patent applicants regard as their invention, and do not apprise a person of ordinary skill in the art of its scope. Thus, all claims which include these phrases are in violation of 35 U.S.C. § 112 ¶ 2.

(k) ‘501 patent claim 16 includes the phrase “the method.” This phrase has no antecedent basis and does not particularly and distinctly claim subject matter that the patent applicants regard as their invention, and does not apprise a person of ordinary skill in the art of its scope. Thus, claim 16 is in violation of 35 U.S.C. § 112 ¶ 2.

(l) ‘998 patent claim 1, and the claim that depends from this independent claim, include the phrase “switching between a rendering on the graphic display that shows at least a portion of the virtual environment to the local user from a perspective of one of the remote user avatars and a rendering that allows the local user to view the local user avatar in the virtual

environment.” This phrase does not particularly and distinctly claim subject matter that the patent applicants regard as their invention, and do not apprise a person of ordinary skill in the art of its scope. Thus, all claims which include this phrase are in violation of 35 U.S.C. § 112 ¶ 2.

#### **4. Obviousness-type Double Patenting**

The asserted claims of the ‘558 patent are unpatentable on the ground of nonstatutory obviousness-type double patenting over one or more claims of Worlds’ other patents, including at least the ‘856, ‘501, and ‘998 patents.

The ‘558 patent purports to claim an invention or inventions not patentably distinct from the claims of the ‘856, ‘501, and ‘998 patents. As a non-limiting example, all the asserted claims of the ‘558 patent are patentably indistinct from claim 1 of the ‘856 patent. Although the conflicting claims are not identical, they are not patentably distinct from each other because applicant merely uses slightly different claim language to claim the same invention. Because the references are in the same field, address the same technology, and are intended to solve the same general problem, one of ordinary skill in the art would have found it obvious to modify the references, rendering the ‘558 patent obvious.

### **III. DOCUMENT PRODUCTION**

To date, Activision has produced all prior art identified pursuant to the Joint Scheduling Statement ¶ 4.B. The production numbers for this prior art are found within the following ranges of documents: ACTV0000001 – ACTV0002513; ACTV00033180 – ACTV00033409; ACTV00053307 – ACTV00053322; ACTV00070055 – ACTV00070287. A production of newly-identified prior art accompanies the filing of these contentions, at the following range: ACTV00070288 – ACTV00070403.

#### **IV. ONGOING DISCOVERY AND DISCLOSURES**

Discovery and Activision's investigation, including Activision's search for prior art, is ongoing. Activision might further supplement, amend, or alter the positions taken and information disclosed in this Fourth Supplemental Invalidity Disclosure including, without limitation, the prior art and grounds of invalidity set forth herein, to take into account information or defenses that may come to light as a result of these continuing efforts. Activision hereby incorporates by reference the testimony of any fact witnesses that are deposed, that provide declarations, or that otherwise testify in this lawsuit. Activision also hereby incorporates by reference the reports and testimony of Activision's expert witnesses regarding invalidity of the Patents-in-Suit.

For certain items of prior art, Activision is seeking discovery from third parties, as appropriate. Activision is also seeking discovery from Worlds including, e.g., discovery regarding conception and reduction to practice, commercial embodiments, etc. Activision, therefore, may supplement or amend this Fourth Supplemental Invalidity Disclosure if and when further information becomes available.

Respectfully Submitted,

Dated: August 26, 2015

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**CERTIFICATE OF SERVICE**

I hereby certify that this document and all attachments filed through the ECF system will be sent electronically to the registered participants as identified on the Notice of Electronic Filing (NEF) and that paper copies will be sent to those non-registered participants (if any) on August 26, 2015.

/s/ Matthew J. Moffa  
Matthew J. Moffa